

## Quadratics 2

### Basics:

1) Find the x-intercepts and y-intercepts of each graph below.

2) Summarize:

a) What is the y-value of the x-intercepts?

b) What is the x-value of the y-intercepts?

3) Find the x-intercepts and y-intercepts of each equation below algebraically.

a)  $y = 2x - 4$

b)  $y = x^2 + 7x + 12$

4) Factor each quadratic

a)  $x^2 + 8x + 15$

b)  $2x^2 + 10x + 12$

5) Expand each quadratic

a)  $(x - 3)(x + 2)$

b)  $(3x + 1)(2x - 4)$

## Quadratic Forms

|                  |                           |                            |
|------------------|---------------------------|----------------------------|
| Vertex Form:     | $y = A(x - H)^2 + K$      | e.g. $y = 2(x - 2)^2 - 2$  |
| Factored Form:   | $y = A(x - R_1)(x - R_2)$ | e.g. $y = 2(x - 1)(x - 3)$ |
| Polynomial Form: | $y = ax^2 + bx + c$       | e.g. $y = 2x^2 - 8x + 6$   |

### Vertex Form:

6) Find the vertex and x-intercepts algebraically and then check graphically.

- a)  $y = (x - 3)^2 - 4$
- b)  $y = -3(x + 2)^2 + 12$
- c)  $y = 2(x - 2)^2 + 7$

7) Convert to polynomial form algebraically and then check graphically.

- a)  $y = (x - 3)^2 - 4$
- b)  $y = -3(x + 2)^2 + 12$
- c)  $y = 2(x - 2)^2 + 7$

### Factored Form:

8) Find the vertex and x-intercepts algebraically and then check graphically.

- a)  $y = (x + 3)(x + 5)$
- b)  $y = 3(x - 3)(x + 5)$
- c)  $y = -4(2x - 1)(x + 4)$

9) Convert to polynomial form algebraically and then check graphically.

- a)  $y = (x + 3)(x + 5)$
- b)  $y = 3(x - 3)(x + 5)$
- c)  $y = -4(2x - 1)(x + 4)$